Amendments to the Claims

1. (CURRENTLY AMENDED) A switch mode power supply circuit ~~(10, 300)~~ including at least one inductive component ~~(TR1)~~ coupled to associated switching means ~~(SW1)~~ for cyclically connecting the inductive component to a source of power, the circuit ~~(10)~~ including a signal output representative of a voltage at a junction of the at least one inductive component to the switching means, the circuit ~~(10)~~ further comprising a hard switching amplitude detector ~~(100)~~ for deriving a measure of hard switching amplitude occurring in operation in the switching means ~~(SW1)~~, the detector including a signal processing path for receiving the signal output and generating the measure of hard switching amplitude therefrom, the signal path including:

signal differentiating means ~~(310)~~ for imperfectly differentiating the signal output to generate a corresponding imperfectly differentiated signal; and

signal integrating means ~~(320)~~ for integrating the imperfectly differentiated signal in a temporally-gated manner for generating the measure of hard switching.

2. (CURRENTLY AMENDED) A circuit ~~(10, 300)~~ according to Claim 1, wherein the detector ~~(300)~~ further includes timing means ~~(330)~~ for applying temporal gating to the integrating means ~~(320)~~.

3. (CURRENTLY AMENDED) A circuit ~~(10, 300)~~ according to Claim 2, wherein the timing means ~~(330)~~ are also arranged to provide temporal gating to the differentiating means ~~(310)~~.

4. (CURRENTLY AMENDED) A circuit ~~(10, 300)~~ according to Claim 2, wherein the timing means ~~(330)~~ are arranged to reset at least one of the differentiating means ~~(310)~~ and the integrating means ~~(320)~~ for each conduction cycle of the switching means ~~(SW1)~~.

5. (CURRENTLY AMENDED) A circuit ~~(10, 300)~~ according to Claim 1, wherein each conduction cycle of the switching means has associated therewith, in operation:

a downward stroke ~~(70)~~ whereat the switching means switches from a substantially non-conductive state to a substantially conductive state: and

an upward stroke whereat the switching means switches from a substantially conductive state to a substantially non-conductive state,

the detector ~~(300)~~ being arranged so as to be capable of imperfectly differentiating and subsequently integrating the output signal in a period commencing shortly prior to the upward stroke and ending shortly after completion of the downward stroke of each cycle for deriving the measure of hard switching amplitude during that cycle.

6. (CURRENTLY AMENDED) A circuit ~~(10, 300)~~ according to Claim 1, wherein each conduction cycle of the switching means has associated therewith, in operation:

a downward stroke ~~(70)~~ whereat the switching means switches from a substantially non-conductive state to a substantially conductive state: and

an upward stroke whereat the switching means switches from a substantially conductive state to a substantially non-conductive state,

the detector being arranged so as to be capable of imperfectly differentiating and subsequently integrating the output signal in a period:

commencing substantially from the end of a first differential signal peak (210) arising from the downward stroke of each cycle to include a subsequent second differential signal peak ~~(215)~~ arising within the cycle after the first peak ~~(210)~~; and

ending within or after the second differential signal peak ~~(215)~~, for deriving the measure of hard switching amplitude during that cycle.

7. (CURRENTLY AMENDED) A circuit ~~(10, 300)~~ according to Claim 1, wherein the differentiating means ~~(310)~~ are implemented as a potential divider combination of a resistor and an associated capacitor, the resistor and capacitor defining an associated time constant capable of rendering the combination susceptible

to providing imperfect differentiation of the signal output suitable for use in generating the measure of hard switching amplitude.

8. (CURRENTLY AMENDED) A circuit ~~(10, 300)~~ according to Claim 1, wherein the differentiating means ~~(310)~~ are implemented as a potential divider combination of a resistor and an associated inductor, the resistor and inductor defining an associated time constant capable of rendering the combination susceptible to providing imperfect differentiation of the signal output suitable for use in generating the measure of hard switching amplitude.

9. (CURRENTLY AMENDED) A circuit ~~(10, 300)~~ according to Claim 1, the circuit being susceptible for use in at least one of: switch mode power supplies, motor controllers, battery chargers, ionizing apparatus, high tension bias generators.

10. (CURRENTLY AMENDED) A method of generating a measure of hard switching amplitude in a switch mode power supply circuit ~~(10, 300)~~, the circuit including at least one inductive component coupled to associated switching means for cyclically connecting the inductive component to a source of power, the circuit ~~(10, 300)~~ including a signal output representative of a voltage at a junction of the at least one inductive component to the switching means, the method including the steps of:

(a) providing the circuit with a hard switching amplitude detector ~~(300)~~ for deriving the measure of hard switching amplitude occurring in operation in the switching means, the detector ~~(300)~~ including a signal processing path for receiving the signal output and generating the measure of hard switching amplitude therefrom;

(b) imperfectly differentiating the signal output using signal differentiating means (310) included in the signal path for generating a corresponding imperfectly differentiated signal; and

(c) integrating the imperfectly differentiated signal in a temporally-gated manner in signal integrating means ~~(320)~~ included in the signal path for generating the measure of hard switching.